

WHAT IS CLAIMED IS:

1.           A wireless transmitter for transmitting a signal to a wireless receiver, comprising:
  - an encoder for encoding the transmission signal;
  - a pre-modulation buffer for storing the encoded transmission signal;
  - a modulator for modulating the encoded transmission signal in accordance with one of a plurality of modulation schemes which define a first number of transmission bits, which is the number of transmission bits per symbol in said wireless transmitter, to be equal to or smaller than a second number of transmission bits which is a previously defined number of transmission bits per symbol; and
  - a RF module for transmitting the modulated transmission signal, wherein:
    - information on said second number of transmission bits is shared with said wireless receiver;
    - the transmission signal is read from said pre-modulation buffer every said second number of transmission bits and inputted into said modulator; and
    - said modulator modulates said first number of transmission bits of the transmission signal inputted thereto, and does not modulate the remaining bits of the transmission signal which is the difference between the second number of transmission bits and the first

number of transmission bits.

2. A wireless transmitter according to claim 1, wherein:

said wireless transmitter transmits the information on said second number of transmission bits to said wireless receiver prior to the transmission of the transmission signal, such that the information on said second number of transmission bits is shared with said wireless receiver.

3. A wireless transmitter according to claim 1, wherein:

said wireless transmitter is responsive to a repeat request signal transmitted from said wireless receiver to retransmit an encoded transmission signal identified by said repeat request signal, said encoded transmission signal being stored in said pre-modulation buffer.

4. A wireless transmitter according to claim 1, wherein:

the encoded transmission signal stored in said pre-modulation buffer is divided into a plurality of blocks on a codeword-by-codeword basis, and inputted to said modulator on a block-by-block basis;

the encoded transmission signal is inputted to said modulator on a block-by-block basis under the control of the repeat request signal transmitted from said wireless receiver; and

said wireless transmitter stops transmitting

the codeword when the received repeat request signal indicates that retransmission of the codeword of the transmission signal is not required in said wireless receiver, and performs operations for transmitting a codeword next to the codeword.

5. A wireless receiver for receiving a signal transmitted from a wireless transmitter, comprising:

an RF module for receiving the signal;

a demodulator for demodulating the received signal in accordance with one of a plurality of modulation schemes which defines a third number of transmission bits, which is the number of transmission bits per symbol, to be equal to or smaller than a fourth number of transmission bits which is a previously defined maximum number of transmission bits per symbol; and

a decoder for decoding the demodulated received signal,

wherein information on said fourth number of transmission bits is shared with said wireless transmitter; and

said demodulator outputs said fourth number of transmission bits of the demodulated received signal each time said demodulator demodulates one symbol.

6. A wireless receiver according to claim 5, further comprising:

a channel quality determination unit for determining a channel quality between said wireless

receiver and said wireless transmitter,

wherein said third number of transmission bits is determined on the basis of the determined channel quality.

7. A wireless receiver according to claim 6, wherein said channel quality determination unit determines the channel quality using a signal received from said wireless transmitter.

8. A wireless receiver according to claim 5, wherein said demodulator outputs a demodulated signal sequence including likelihood information for the third number of transmission bits each time said demodulator demodulates one symbol, and said demodulator outputs a likelihood of zero or near zero for a number of lower bits equal to the difference between said fourth number of transmission bits and said third number of transmission bits.

9. A wireless receiver according to claim 5, wherein said wireless receiver receives the information on said fourth number of transmission bits communicated from said wireless transmitter.

10. A wireless receiver according to claim 5, wherein said wireless receiver receives information on the number of transmission bits per symbol in said wireless transmitter from said wireless transmitter, and determines said third number of transmission bits based on the received information.

11. A wireless receiver according to claim 5,

wherein:

said wireless receiver receives a signal transmitted from said wireless transmitter, said signal including codewords, each of which is divided into a plurality of blocks such that the signal is transmitted on a block-by-block basis, and stores the blocks; and

said decoder decodes blocks of the received signal corresponding to part or all of a codeword, such that said wireless receiver generates a repeat request signal indicative of whether or not the blocks have been successfully decoded on the basis of whether or not the decoding is successful, and transmits the repeat request signal to said wireless transmitter.

12. A wireless receiver according to claim 11, wherein said decoder decodes the blocks when determining that the stored received signal includes sufficient information for decoding.

13. A wireless receiver according to claim 11, wherein said wireless receiver stops receiving the received codeword when said wireless receiver has transmitted the repeat request signal indicative of successful decoding to said wireless transmitter, and starts receiving blocks corresponding to a codeword next to the codeword transmitted in response to the repeat request signal.

14. A signal transmission/reception method in a wireless communication system for transmitting a signal from a first wireless station to a second wireless

station, wherein said first wireless station and said second wireless station share information on a first number of transmission bits which is a maximum number of transmission bits per symbol, said method comprising the steps of:

encoding the transmission signal in said first wireless station;

inputting said encoded transmission signal to a modulator of said first wireless station every said first number of transmission bits;

modulating in said modulator the encoded transmission signal in accordance with one of a plurality of modulation schemes which define a second number of transmission bits, which is the number of transmission bits per symbol in said first wireless station, to be equal to or smaller than said first number of transmission bits, said modulating step including modulating said second number of transmission bits of the inputted transmission signal and not modulating a number of bits of the transmission signal equal to the difference between said first number of transmission bits and said second number of transmission bits;

transmitting the modulated transmission signal from said first wireless station to said second wireless station;

receiving a transmission signal from said first wireless station in said second wireless station;

demodulating in a demodulator of said second wireless station the received signal in accordance with one of a plurality of modulation schemes which define a third number of transmission bits, which is the number of transmission bits per symbol in said second wireless station, to be equal to or smaller than said first number of transmission bits;

outputting from said demodulator said first number of transmission bits of the demodulated received signal each time said demodulator demodulates one symbol; and

decoding the demodulated received signal in a decoder of said second wireless station.

15. A signal transmission/reception method according to claim 14, further comprising the step of:

notifying said first number of transmission bits from said first wireless station to said second wireless station.

16. A signal transmission/reception method according to claim 14, further comprising the steps of:

notifying said second number of transmission bits from said first wireless station to said second wireless station; and

determining said third number of transmission bits based on said second number of transmission bits in said second wireless station.

17. A signal transmission/reception method according to claim 14, further comprising the steps of:

estimating in said second wireless station a channel quality between said first wireless station and said second wireless station based on a signal received from said first wireless station; and

determining said third number of transmission bits based on the estimated channel quality.

18. A signal transmission/reception method according to claim 14, wherein:

said step of transmitting includes the substep of dividing each of codewords representing the encoded transmission signal into a plurality of blocks, and the substep of transmitting the encoded transmission signal on a block-by-block basis; and

said step of decoding includes the substep of decoding blocks corresponding to part or all of the codeword,

wherein said method further comprises the step of transmitting a repeat request signal indicating whether or not the blocks have been successfully decoded from said second wireless station to said first wireless station.

19. A signal transmission/reception method according to claim 18, further comprising the steps of:

stopping the transmission of the blocks of the codeword in said first wireless station in response to the repeat request signal which indicates that the blocks have been successfully decoded; and

finishing the reception of the codeword which



has been successfully decoded, and starting receiving a codeword next to said codeword in said second wireless station.

20. A signal transmission/reception method according to claim 18, further comprising the steps of:

transmitting at least one identical or different block of the same codeword in said first wireless station in response to the repeat request signal which indicates that the blocks have been unsuccessfully decoded; and

continuing to receive the codeword, and again attempting to decode one or more received blocks in said second wireless station.